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Edward D. Manzo
Cook, Alex, McFarron, Manzo,
Cummings & Mehler, Ltd.
200 West Adams St., Ste. 2850
Chicago, IL 60606

EXAMINER

QI, ZHI QIANG

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| ART UNIT | PAPER NUMBER |
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2871

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,483

Applicant(s)

SATAKE ET AL.

Examiner

Mike Qi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2006 and 30 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42,43,47-53,57-64 and 68-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42,43,47-53,57-64 and 68-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/332,792.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 30, 2006 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 68-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,805,252 (Shimada et al) in view of US 5,926,240 (Hirota et al) and further in view of US 4,636,038 (Kitahara et al).

Regarding claims 68-73 and 76-78, Shimada teaches (col.9, line 2 –col.10, line 63; Fig.14) a liquid crystal display comprising:

- switching element (TFT 40) formed over substrate (31);
- insulating film (34) functions as a first insulating film;

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- organic insulating film (42), normally using organic resin, formed over the insulating film (34), and the organic insulating film having a plurality of protrusions (convex portions 42a) as a first protrusion;
- pixel electrode (38) formed over the plurality of the first protrusions, and the surface of the pixel (38) having a plurality of second protrusions corresponding to the first protrusions (42a);
- orientation film (44).

Shimada does not explicitly disclose that:

1) over the pixel electrode to form a first dielectric layer (such as SiO_2) and a second dielectric layer (such as TiO_2), and the second dielectric layer (such as TiO_2) formed on the first dielectric layer (such as SiO_2) with different refractive index so that the orientation film formed over the second dielectric layer;

2) the first interlayer insulating film formed over the switching element.

Hirota teaches (col.1, lines 24 – 44; Fig.7) that over the pixel electrode (32) to form a dielectric film (34) (second dielectric layer) such as titanium dioxide (TiO_2) on the dielectric film (33) (first dielectric layer) such as silicon dioxide (SiO_2) with different refractive index on the surface of the pixel electrode (stacked one upon the other) so as to increase the reflectivity and to eliminate the problem that the metal surface is prone to corrode at an interface where it is in direct contact with the crystal (see col.1, lines 24-30) . Because the orientation film is formed on the pixel electrode, so that the multi-dielectric films formed on the surface of the pixel electrode result in the orientation film formed on the second dielectric layer.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Shimada with the teachings of forming multi-dielectric layers on the surface of the pixel electrode with difference refractive index as taught by Hirota, since the skilled in the art would be motivated for increasing the reflectivity and eliminating corrosion problem of the pixel electrode.

Even though Shimada and Hirota lack the first interlayer insulating film formed over the switching element, **Hirota** further teaches (col.5, lines 11-52; Fig.1) that an active matrix element (18) having insulation layer (4) functions as first interlayer insulating film over the switching element (transistor) and silicon oxide layer (6) functions as second interlayer insulating film (as set forth above such insulating film can be made of organic resin), and such active matrix element prevents a reduction in reflectivity caused by corrosion of the pixel electrodes (see col.2, lines 10-14).

As evidence, Kitahara teaches (col. 2, lines 43-48) that in an electric circuit member, an inorganic insulating layer formed over the thin film transistor array and an organic insulating layer formed over the inorganic insulating layer. Kitahara further teaches (col.5, lines 3-45; Fig.3) with the aid of the inorganic insulating layer (6a over the TFT as first interlayer insulating film) to sufficient protect TFT and stabilize the characteristics thereof, and also with the aid of the organic insulating layer (6b over the inorganic insulating layer 6a as second interlayer insulating film) to satisfactorily prevent a bad influence exert upon the device and generation of pinholes.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Shimada and Hirota with the

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teachings of an interlayer insulating film formed over TFT as taught by Kitahara, since the skilled in the art would be motivated for sufficient protecting TFT and stabilizing the characteristics thereof.

Regarding claims 74-75, the display device used in a digital camera or a digital still camera that are only given weight as intended use as any display can be used for these products, and that would have been at least obvious.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 42-43, 47-53 and 57-64 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-55 of U.S. Patent No. 6,426,787 B1 and over claims 1-36 of U. S. Patent No. 6,707,521 B2.

Although the conflicting claims are not identical, they are not patentably distinct from each other. Because the claims 42-43, 47-53 and 57-64 of this application and the claims 1-55 of the US patent 6,426,787 and the claims 1-36 of the US patent 6,707,521

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have a very close and corresponding limitations except for a few wording are different, and that substantially constitutes a doctrine of obviousness-type double patenting.

Regarding claims 42, 52 and 60, the claim 1 of the US patent 6,426,787 and the claim 1 of the US patent 6,707,521 describe an electronic device having at least one reflection type liquid crystal device, said reflection type liquid crystal device comprising:

- thin film transistor (switching element) being formed over a first substrate;
- interlayer insulating film being formed over the thin film transistor (switching element) and the first substrate;
- pixel electrode comprising a metal and being formed over the interlayer insulating film;
- reflection layer comprising a dielectric multi-layer film and being formed on the pixel electrode;
- convex or concave portions are formed on the interlayer insulating film, so that a surface of the pixel electrode has convex or concave portions (protrusions);
- the dielectric multi-layer film comprises a first thin film having a first refractive index and a second thin film having a second refractive index formed on the first thin film;
- second refractive index is higher than the first refractive index;
- the second refractive index in a range of 1.8 to 6.0;
- the first refractive index has a ratio of 0.7 or less with respect to the second refractive index.

The difference between the claims of this application and the patents are “an electronic device” and “a camera” or “a personal computer” or “a cellular phone” in the preamble of the claims. Any electronic device including camera or personal computer that are only given weight as intended use, and that have been at least obvious.

Claims 43, 47-51, 53, 57-59 and 61-64 having the same difference from the claims 2-55 of the US patent 6,426,787 and the claims 2-36 of the US patent 6,707,521 are “an electronic device” and “a camera” or “a personal computer” or “a cellular phone” in the preamble of the claims. Any electronic device including camera or personal computer that are only given weight as intended use, and that have been at least obvious.

Response to Arguments

5. Applicant's arguments with respect to claims 68-78 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mike Qi
Patent examiner
Sep. 9, 2006